

Date: Friday, 27/03/2009 8:53:25 AM  
 User: Chantal Lavoie

## Process Sheet

Customer : CU-DAR001 Dart Helicopters Services Drawing Name : FWD X-TUBE EXT HEIGHT(-013)  
 Job Number : 46711  
 Estimate Number : 10565  
 P.O. Number :  
 This Issue : 27/03/2009 S.O. No. :  
 Prsht Rev. : NC Part Number : D205596105 B  
 First Issue : / / Type : CROSSTUBES Drawing Number : D205596105  
 Previous Run : 44381 Project Number : N/A  
 Drawing Revision : B  
 Material :  
 Due Date : 10/04/2009 Qty: 1 Um: Each  
 Written By :  
 Checked & Approved By : JUD 09-03-27  
 Comment : Est Rev:D 05.03.21 Added bending procedure KJ/JLM  
 Est Rev:E 08-01-10 ECN 1075 DD  
 Est Rev F 08.04.28 Added bending & mat'l EC  
 verified by: DD



## Additional Product

Job Number:



Seq. #: Machine Or Operation: Description :

1.0 DC DOCUMENT CONTROL



★ SEE W/O CHG



Comment: DOCUMENT CONTROL

Photocopy D205-594 bluefile & type labels per PPP D205-596-1057CHG002 001 09/04/02

2.0 D6005180 Crosstube Material



Comment: Qty.: 1.0000 Each(s)/Unit Total : 1.0000 Each(s)

Crosstube Material

batch: B-30345 MB 09-03-30

3.0 BENDING CROSS BENDING MACHINE - CROSSTUBES



Comment: BENDING MACHINE - CROSSTUBES

Bend as per Dwg D2889 using CNC bender program MB 09-03-30

4.0 CROSSTUBES CROSSTUBES RESOURCE 1



Comment: LANDING GEAR RESOURCE 1 MB 09-03-30

Mark 23.92" for cutting from tangential line in the straight section from D2889 as per Dwg wall template.

5.0 QC15 DIMENSIONAL CHECK OF X-TUBES



Comment: DIMENSIONAL CHECK OF X-TUBES S 09/03/30 (+0)

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector
09.09.01	14	CLAMP TOWERS IN PLACE FOR SETUP WAIT FOR ENG APPROVAL BEFORE DRILLING TOWER HOLES.	AT	090402		09.09.01 PUL 091042	090401

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

Resolution: \_\_\_\_\_ Disposition: \_\_\_\_\_ QA: N/C Closed: \_\_\_\_\_ Date: \_\_\_\_\_

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

**NOTE:** Date & initial all entries

Date: Friday, 27/03/2009 8:53:25 AM  
User: Chantal Lavoie

## Process Sheet

Customer: CU-DAR001 Dart Helicopters Services

Drawing Name: FWD X-TUBE EXT HEIGHT(-013)

Job Number: 46711

Part Number: D205596105

Job Number:



Seq. #:

Machine Or Operation:

Description :

6.0

CROSSTUBES

CROSSTUBES RESOURCE 1



Comment: LANDING GEAR RESOURCE 1

1-Cut as per Dwg D205-596-105

2-Deburr & Inspect for surface damage. Polish cut surface. Scribe part # and batch # on one end of tube.

7.0

QC15

DIMENSIONAL CHECK OF X-TUBES



Comment: DIMENSIONAL CHECK OF X-TUBES

8.0

HAND FINISHING1

HAND FINISHING RESOURCE #1



Comment: HAND FINISHING RESOURCE #1

Chemical Conversion Coat per QSI 005 4.1

9.0

SPRAY PAINTING

SPRAY PAINTING



Comment: SPRAY PAINTING

1-Prime inside and outside with Immron per QSI 005 4.2

10.0

QC14

INSPECT SPRAY PAINT



Comment: Inspect Spray Paint

11.0

D3595063450

RUBBER CUSHION



Comment: Qty.: 4.0000 Each(s)/Unit Total: 4.0000 Each(s)

RUBBER CUSHION

batch 43210

12.0

MS2192025

Clamp(per MIL-DTL-8783C)

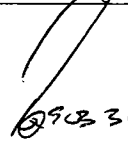
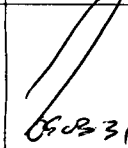
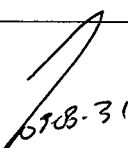
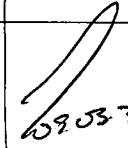


Comment: Qty.: 4.0000 Each(s)/Unit Total: 4.0000 Each(s)

Clamp(per MIL-DTL-8783C)

batch 109643

Dart Aerospace Ltd

W/O:		WORK ORDER CHANGES						
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng/ Prod Mgr	Approval QC Inspector	
9-03-31	9.0	prime inside of tube as per QSR 005 4.2 prime outside of tube as per QSR 005 4.2 start time <u>10:30</u> finish time <u>11:30</u>	BT	09-03-31				
		Paint outside of tube with Imron as per QSR 005 4.2 start time <u>4:00</u> finish time <u>3:00</u> <i>Perm change</i>	BT	09-03-31				

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

Resolution: \_\_\_\_\_ Disposition: \_\_\_\_\_ QA: N/C Closed: \_\_\_\_\_ Date: \_\_\_\_\_

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

Date: Friday, 27/03/2009 8:53:25 AM  
User: Chantal Lavoie

## Process Sheet

Customer: CU-DAR001 Dart Helicopters Services

Drawing Name: FWD X-TUBE EXT HEIGHT(-013)

Job Number: 46711

Part Number: D205596105 **B**

Job Number:



Seq. #:

Machine Or Operation:

Description :

13.0

D28931

2.75 Support



Comment: Qty.: 2.0000 Each(s)/Unit Total : 2.0000 Each(s)

Pick:

Qty Part number

Description

Batch

2 D2893-1

Support

**42353**

**RT 09-04-01**

14.0

CROSSTUBES

CROSSTUBES RESOURCE 1



Comment: LANDING GEAR RESOURCE 1

1- Lightly scuff the bonded area using a 320 grit sand paper and clean the area with 41058 wash 'n' wipe

2- Apply magnobond 6398 as per dwg D205-596-105

Magnobond 6398 Batch: **109900**

EXP: **09-07-13**

3- Install supports and clamps per Dwg D205-596-105. Torque clamps to 80-100 in lb. as per dwg

**RT 07-04-02**

15.0

QC5

INSPECT WORK TO CURRENT STEP



Comment: INSPECT WORK TO CURRENT STEP

16.0

PACKAGING 1

PACKAGING RESOURCE #1



EFFECTIVE **09.03.31** AUTH **GP**  
RELEASED **GP** DATE **09.04.02**



Comment: PACKAGING RESOURCE #1

Identify and pack for shipping as per PPP D205-596-105

Location: **E**

PPP Rev: **9/4/2**

**SEE V/O CHG**

**SSSE**

17.0

QC21

FINAL INSPECTION/W/O RELEASE



Comment: FINAL INSPECTION/W/O RELEASE

**09/04/02**

Job Completion



**mf**  
**09-04-02**

W/O:		WORK ORDER CHANGES						
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector	
09.03.31	1	IDENTIFY TUBE <del>AS</del> AS DZUS-596-105 B CHG 001 INCLUDE DSI 94SS Rev.A RED LABEL: 214 A/L ONLY				CP 09.03.31 PC QSI 012	10904-02	
09.03.31	14	INSTALL XTUBE SUPPORTS 13.75" FROM XTUBE E	AT	090402		CP 09.03.31 PC QSI 012	10904-02	

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

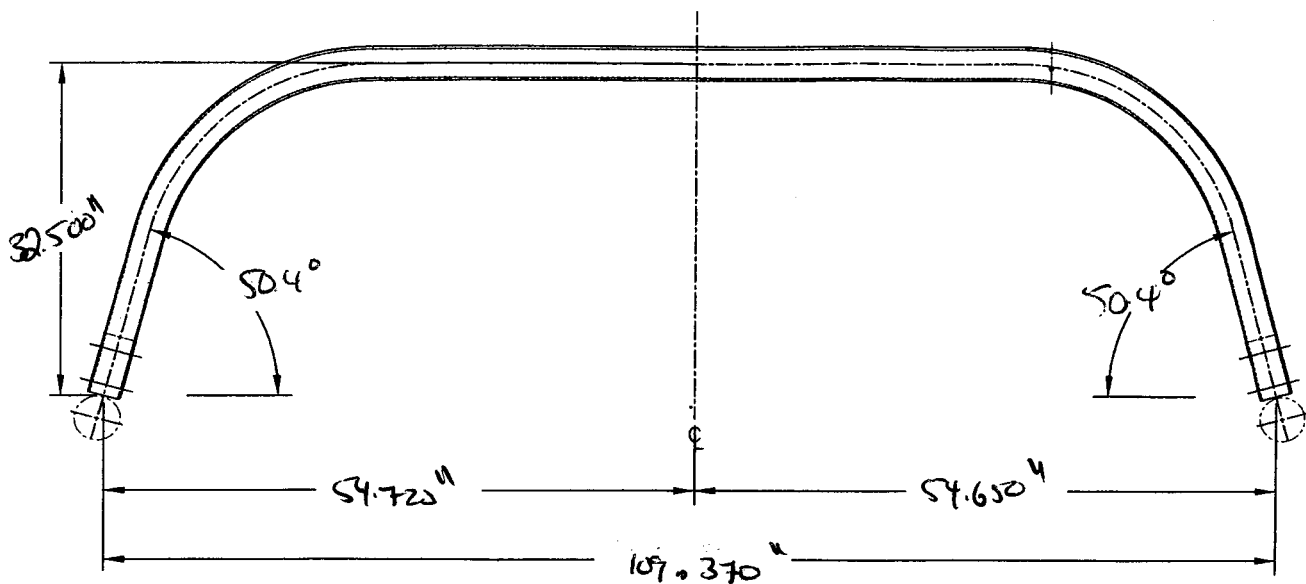
Resolution: \_\_\_\_\_ Disposition: \_\_\_\_\_ QA: N/C Closed: \_\_\_\_\_ Date: \_\_\_\_\_

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

DART AEROSPACE LTD		Work Order:	46711
Description: Crosstube High-High Fwd		Part Number:	D205-596-105 B
Inspection Dwg: D205-596-105 Rev: B		Page 1 of 1	

Required Dimension	Min	Max
Height	32.4	32.6
1/2 Span	54.6	54.8
Angle	49	52
Total Span	109.2	109.6



Comments

QC15 Inspection	S
Date	07/03/30

Rev	Date	Change	Revised by	Approved
A	07.02.06	New Issue	KJ/JM	
B	08.04.21	Dwg Rev updated	KJ/JM	Jm

**Dart Aerospace Ltd**

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

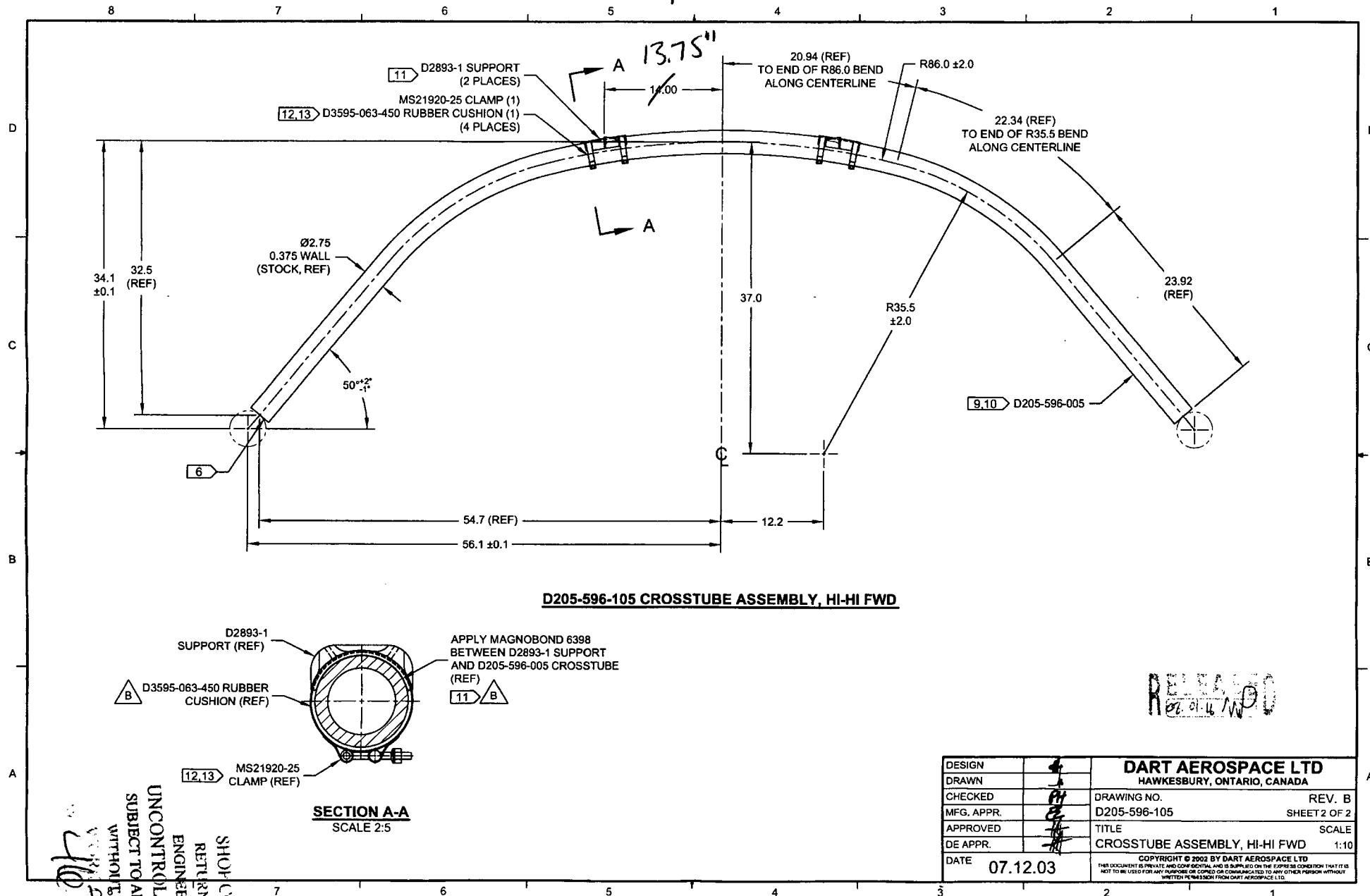
Resolution: \_\_\_\_\_ Disposition: \_\_\_\_\_ QA: N/C Closed: \_\_\_\_\_ Date: \_\_\_\_\_

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

**NOTE:** Date & initial all entries



CP 09.03.3)



SHOH COPY  
RETURN TO  
ENGINEERING  
UNCONTROLLED COPY  
SUBJECT TO AMENDMENT  
WITHOUT NOTICE

RELEASED

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

Resolution: \_\_\_\_\_ Disposition: \_\_\_\_\_ QA: N/C Closed: \_\_\_\_\_ Date: \_\_\_\_\_

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

**NOTE:** Date & initial all entries

# DART SERVICE INSTRUCTION

TO AMEND INSTALLATION INSTRUCTIONS IIN-D205-594 REV. D OR EARLIER  
AND INSTRUCTIONS FOR CONTINUED AIRWORTHINESS ICA-D205-594 REV. 3 OR EARLIER

REF CANADIAN STC: SH03-6  
REF FAA STC: SR01742NY  
REF EASA STC: EASA.IM.R.S.01198

## PURPOSE:

The required spacing between the supports for installation of crosstubes on 214B/B-1 model aircraft is different than the spacing for 205/212 model aircraft. Additional installations are available from Dart with supports positioned for compatibility with 214 aircraft. The supports on existing Dart D205-596-101/-103/-105/-107 crosstubes must be repositioned before installation on 214 aircraft.

## CHANGE:

The following crosstube installations are available from Dart for the 214B/B-1 model aircraft:


QTY -011B	QTY -013B	Part Number	Description	Equivalent 205/212 Kit
X		D205-594-011B	EXTENDED HEIGHT LANDING GEAR KIT, (39", 214)	D205-594-011
	X	D205-594-013B	EXTENDED HEIGHT LANDING GEAR KIT, (31", 214)	D205-594-013
1		D205-596-101B	CROSSTUBE ASSEMBLY, HI HI FWD (214)	D205-596-101
1		D205-596-103B	CROSSTUBE ASSEMBLY, HI HI AFT (214)	D205-596-103
	1	D205-596-105B	CROSSTUBE ASSEMBLY, HI HI FWD (214)	D205-596-105
	1	D205-596-107B	CROSSTUBE ASSEMBLY, HI HI AFT (214)	D205-596-107

The D205-596-101B/-103B/-105B/-107B are the same as the equivalent crosstubes listed in the table above. However, the spacing of the supports is narrower to accommodate 214 model aircraft, as illustrated in Figure 1 of this service instruction. The new kits are otherwise installed, maintained, and have identical replacement parts lists per their equivalent crosstubes in Installation Instructions IIN-D205-594 and Instructions for Continued Airworthiness ICA-D205-594. All statements in FMS-D214-594 that apply to the D205-594-011/-013 landing gears are also applicable to D205-594-011B/-013B landing gears.

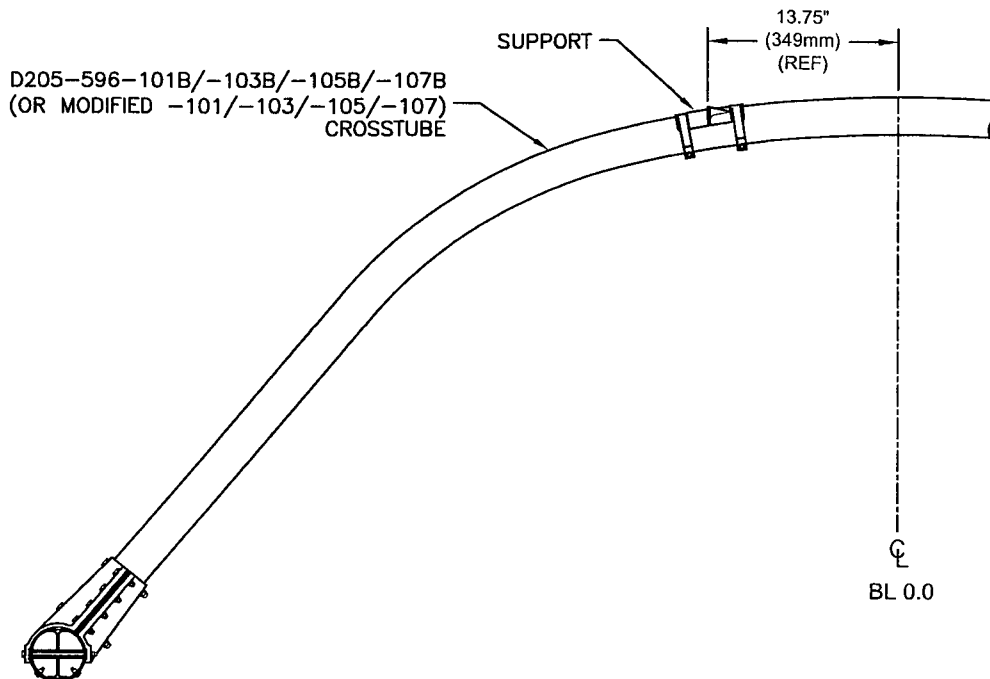
Dart D205-596-101/-103/-105/-107 crosstubes may also be installed on 214B/B-1 model aircraft. To install on 214 aircraft, the supports on the -101/-103/-105/-107 crosstubes must be repositioned per the following procedure:

- 1) Remove the supports per section 32.3 of ICA-D205-594.
- 2) Reinstall the supports per section 32.4 of ICA-D205-594. However, locate the supports with the vertical face 13.75" (349mm) from the crosstube center as shown in Figure 1 of this service instruction.
- 3) The crosstubes should otherwise be installed and maintained per Installation Instructions IIN-D205-594 and Instructions for Continued Airworthiness ICA-D205-594.
- 4) If the modified crosstubes or D205-596-101B/-103B/-105B/-107B crosstubes are to be installed on 205/210/212/UH-1 model aircraft, reinstall the crosstube supports with the vertical face 14.00" (356mm) from the crosstube center, as indicated in ICA-D205-594.

CANADA DEPARTMENT OF TRANSPORT AIRCRAFT CERTIFICATION BRANCH DAO # 01-O-01
APPROVED 
BY: D. SHEPHERD (DE # 02)
DATE: 09.01.30
CERT. NO.: SH03-6
ISSUE NO.: 3

A	NEW ISSUE	NO. 46711	CP	09.01.30
REV.	DESCRIPTION	BY	DATE	
DESIGN	92	<b>DART AEROSPACE LTD</b> HAWKESBURY, ONTARIO, CANADA		
DRAWN	92			
CHECKED	A.S.S.	DRAWING NO.	REV. A	
MFG. APPR.	N/A	DSI 9455	SHEET 1 OF 2	
APPROVED		TITLE	SCALE	
DE APPR.		CROSSTUBE INSTALL ON 214 A/C	NTS	
DATE	09.01.30	COPYRIGHT © 2009 BY DART AEROSPACE LTD THIS DOCUMENT IS PRIVATE AND CONFIDENTIAL AND IS SUPPLIED ON THE EXPRESS CONDITION THAT IT IS NOT TO BE USED FOR ANY PURPOSE OR COPIED OR COMMUNICATED TO ANY OTHER PERSON WITHOUT WRITTEN PERMISSION FROM DART AEROSPACE LTD.		

UNCONTROLLED COPY  
SUBJECT TO AMENDMENT  
WITHOUT NOTICE  
WORK ORDER



**FIGURE 1 - SUPPORT INSTALLATION**  
(214B/B-1 AIRCRAFT ONLY)

SHOP COPY  
RETURN TO  
ENGINEERING  
UNCONTROLLED COPY  
SUBJECT TO AMENDMENT  
WITHOUT NOTICE  
WORK ORDER  
NO. 96711

CANADA  
DEPARTMENT OF TRANSPORT  
AIRCRAFT CERTIFICATION  
BRANCH  
DAO # 01-O-01

APPROVED

BY: [Signature]  
D. SHEPHERD (DE # 02)

DATE: 09.01.30  
CERT. NO.: SH03-6  
ISSUE NO.: 3

DESIGN	92	<b>DART AEROSPACE LTD</b> HAWKESBURY, ONTARIO, CANADA	
DRAWN	92		
CHECKED	ALS	DRAWING NO.	REV. A
MFG. APPR.	N/A	DSI 9455	SHEET 2 OF 2
APPROVED	[Signature]	TITLE	SCALE
DE APPR.	[Signature]	CROSSTUBE INSTALL ON 214 A/C	NTS
DATE 09.01.30		COPYRIGHT © 2009 BY DART AEROSPACE LTD THIS DOCUMENT IS PRIVATE AND CONFIDENTIAL AND IS SUPPLIED ON THE EXPRESS CONDITION THAT IT IS NOT TO BE USED FOR ANY PURPOSE OR COPIED OR COMMUNICATED TO ANY OTHER PERSON WITHOUT WRITTEN PERMISSION FROM DART AEROSPACE LTD.	